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Regional Networks to Strengthen Higher Education in Africa

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Challenges for Higher Education in Sub-Saharan Africa

- Universities with strong science and engineering are now seen as essential for economic growth in every country.
- In Africa, higher education has been weakened by years of civil unrest, low funding, and emigration of talented people.
- Result: Individual universities lack sufficient capacity to train the researchers, innovators, and future professoriate needed by modern societies.

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Young Africans Deterred from Academic Careers

- Low remuneration
- Poor working conditions
- Low job satisfaction and respect
- Lack of professional development
- Lack of equipment

Ranks of Faculty Severely Depleted

- Makerere University: Established faculty positions in August 2007, 1796; number filled, 1052
- Kenyatta University: Of 730 academic staff, only 31 are full professors and 48 are associate professors
- UDSM: Now searching for 91 new tutorial assistants and assistant lecturers
  - First time to hire lecturers without PhDs
- University of Bayero, Nigeria: Only 65% of lecturers have a PhD
- In Ghana, about 40% of university faculty positions and 60% of polytechnic faculty positions are vacant.

Skewed Age Profiles of Faculty

- Kenyatta University: Of 31 full professors, 28 are over age 50

- UDSM: In May 2006, of 512 academic staff, none were under 30, 8 were between 31 and 35, and only 12% were under 40. Some reasons cited in a recent survey are the 1990-2001 government employment freeze; abolition of tutorial assistant positions; poor pay; and better pay elsewhere. According to the Dean of Graduate Studies, Prof. R. T. Kivaisi: “This trend threatens the continued existence of universities.”

Student Demand Soaring

- Severe overcrowding
- Example: UDSM
  - In the past 5 years, doubling of undergraduates, from 7,500 to 14,500
  - Quintupling of post-graduates, from 563 to 2890

Science & Engineering Face Other Challenges

- Geographic and professional isolation of faculty and graduate students
- Lack of adequate instrumentation: maintenance, parts, upgrades
- Scarce funding for graduate student tuition or continuing education for faculty

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Networks as a Mechanism to Strengthen Higher Education in Africa

- Overcome geographic and professional isolation
- Sharing and economies of scale for instrumentation
- Public/private partnerships for scholarships & fellowships
- Models: AERC, AMMSI, US-Africa Materials Institute

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Partnerships to Support Networks

- Foundations: Partnership for Higher Education in Africa (PHEA)
- US universities: Contributions by visiting faculty
- Development banks: ADB, World Bank: Now seeking mechanisms to act at regional scale
- Other organizations
  - TWAS
  - IFS
  - DFID; other European development agencies

Development Banks

- African Development Bank: Commitment to support more S&T
- World Bank: Current effort to help countries build STI capacity; recently formalized strategy under mission of poverty alleviation

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Foundations

- Partnership for Higher Education in Africa (PHEA)
- Founded in 2000: now includes MacArthur, Rockefeller, Ford, Carnegie, Hewlett, Mellon, Kresge
- Long experience in Africa, overlapping objectives
- Initial focus: ICT

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Regional Initiative in Science and Education (RISE)

- One example of a regional network
- Sponsors: Carnegie Corporation/Institute for Advanced Study
- Role of Science Initiative Group (SIG)
- Ongoing work with World Bank on African STI initiatives
- Primary goals
  - Prepare new S&E faculty to teach in African universities
  - Allow existing faculty to advance to the PhD level

RISE (continued)

- Selected networks each expected to grant a minimum of 15 PhD and Masters degrees over 4-6 years
- Each RISE network to include universities in at least three different countries in sub-Saharan Africa
- Three networks will be selected to receive funding of approximately US$800,000 each over 2 ½ years, with the likelihood of continued funding after initial period
- 48 responses from 29 countries
- Proposals of high quality -- participation by outstanding scientists & engineers
- Judging from quality of proposals, RISE networks likely to train not merely a few faculty, but future S&E leadership

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Key #1: Leverage

- Funding from Carnegie supports three networks
- Has led TWAS and the International Foundation for Science (Sweden) to provide supplementary research funding for selected RISE sites
- Partnerships with universities in the U.S. and other countries will bring collaborative research and faculty exchanges.
- Seeking funding to initiate the Global Science Corps to send scientists to developing countries for collaborative research and teaching; including but not limited to RISE network locations

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Key #2: Collaboration among supporters

- Complementary strengths
- Foundations: Varied expertise and long experience in higher education
- US universities: Importance of incentives and resources, institutional commitment
- Development banks: Government contacts, experience in financing, large resources
- Scientific community/SIG: Linkages with local scientific and academic leaders; evaluation of proposals and programs

Beyond RISE

- Proof of concept
- Increased scale and reach
- Leverage Carnegie funding
- Possibility of regional financing from World Bank
- Create linkages with private sector
- Stronger participation by governments